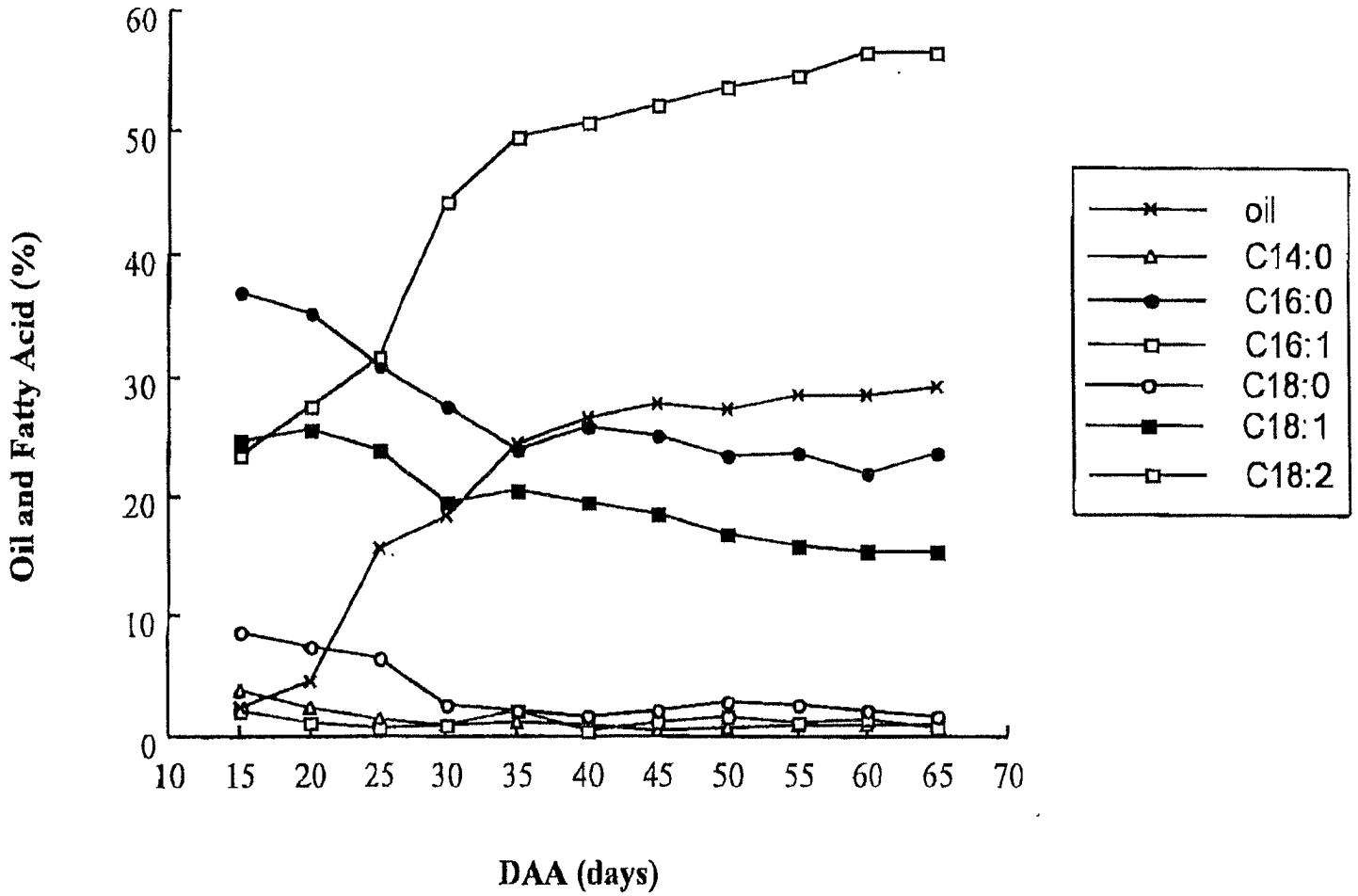

Oil and Fatty Acid (%)
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
65
70
DAA (days)
oil
C14:0
C16:0
C16:1
C18:0
C18:1
C18:2

FIGURE 1

```
CGAAAAGAAAAAATGGCTTTGAATTTTAATGCCATCGCCTCGAAATCTCAGAAGCTCCCT  60
            M  A  L  N  F  N  A  I  A  S  K  S  Q  K  L  P
TGCTTTGCTCTTCCACCAAAGGCCACCCTTAGATCTCCCAAGTTTTCCATGATCTCCACC 120
C  F  A  L  P  P  K  A  T  L  R  S  P  K  F  S  M  I  S  T
ATTCCTTCTGGCTCCAAAGAGGTTGGGAATCTGAAAAAGCCTTTCACGCCTCCAAAGGAG 180
I  P  S  G  S  K  E  V  G  N  L  K  K  P  F  T  P  P  K  E
GTGCCTGTTCAGATCACCCACTCCATGCCGCCTCACAAGATTGAGATCTTTAAATCTTTG 240
V  P  V  Q  I  T  H  S  M  P  P  H  K  I  E  I  F  K  S  L
GAGGGCTGGGCTGAGAACAACATTCTGACTCACCTCAAACCAGTTGAGAAATGTTGGCAA 300
E  G  W  A  E  N  N  I  L  T  H  L  K  P  V  E  K  C  W  Q
CCCGCCGACTTTCTTCCAGATCCTAATTCTGATGGATTTCATGAGCAAGTCAAAGAGCTT 360
P  A  D  F  L  P  D  P  N  S  D  G  F  H  E  Q  V  K  E  L
AGGGAAAGGGCAAAGGAGATCCCAGATGATTACTTTGTAGTTTTGGTTGGTGATATGATC 420
R  E  R  A  K  E  I  P  D  D  Y  F  V  V  L  V  G  D  M  I
ACCGAGGAAGCCCTTTCAACTTATCAAACAATGCTTAATACCTTGGATGGAACTCGTGAT 480
T  E  E  A  L  S  T  Y  Q  T  M  L  N  T  L  D  G  T  R  D
GAGACAGGTGCTAGCCTTACCCCTTGGGCCATTTGGACCAGGGCTTGGACTGCTGAAGAA 540
E  T  G  A  S  L  T  P  W  A  I  W  T  R  A  W  T  A  E  E
AACAGGCATGGTGATCTGCTTAATAAGTATCTCTACTTGTCTGGGAGAGTGGACATGAGG 600
N  R  H  G  D  L  L  N  K  Y  L  Y  L  S  G  R  V  D  M  R
CAAATTGAGAGGACAATCCAGTACTTGATTGGATCGGGAATGGATCCTCATACAGAGAAT 660
Q  I  E  R  T  I  Q  Y  L  I  G  S  G  M  D  P  H  T  E  N
AGTCCTTACCGAGGATTCATATATACTTCGTTCCAAGAAAGGGCAACTTTTATTTCCCAT 720
S  P  Y  R  G  F  I  Y  T  S  F  Q  E  R  A  T  F  I  S  H
GGGAATACAGGCAGGCTGGCTAAGGAGTATGGGGATATTAACTTGGCTCAAATTTGTGGT 780
G  N  T  G  R  L  A  K  E  Y  G  D  I  N  L  A  Q  I  C  G
AGCATTGCCTCAGATGAGAAGCGCCACGAGACAGCCTATACCAAAATCGTTGAAAAGCTG 840
S  I  A  S  D  E  K  R  H  E  T  A  Y  T  K  I  V  E  K  L
TTTGAGATTGATCCTGATGAAACAGTCCTGGCATTTGCTGACATGATGAAGAAGAAAATC 900
F  E  I  D  P  D  E  T  V  L  A  F  A  D  M  M  K  K  K  I
GCCATGCCGGCTGAGTTCATCTATGATGGCAGAGATTATAACTTATTTGACCACTACTCA 960
A  M  P  A  E  F  I  Y  D  G  R  D  Y  N  L  F  D  H  Y  S
GCTGTTGCCCAAAGAATCGGGGTTTACACTGCTAAGGACTATGTTGATATAGTAGAGCAC 1020
A  V  A  Q  R  I  G  V  Y  T  A  K  D  Y  V  D  I  V  E  H
CTGGTGGATCGATGGAAGGTGAAGGAGCTAGCTGGGCTTTCAGCCCAGGGGCGTAAAGCT 1080
L  V  D  R  W  K  V  K  E  L  A  G  L  S  A  E  G  R  K  A
CAGGACTACTTGTGTTCACTTCCTTCGAGAATTAGAAGGTTAGAGGAGAGAGCGCAAGAA 1140
Q  D  Y  L  C  S  L  P  S  R  I  R  R  L  E  E  R  A  Q  E
AAGGCCAAGGAAGCACCCAGTGTCCCATTCAGTTGGATATTTGATAGAGAAGTGAAACTT 1200
K  A  K  E  A  P  S  V  P  F  S  W  I  F  D  R  E  V  K  L
TAGGTCATGAAATACAGTTAAGACTCCTGCAATGCATTTGAGGAAACAAACACGAAGAAG 1260
*
CTGAATGCCAACTTCTCTTTATATATCCGATGTAATAGAGGTTGTATATGTAACAGGAGG 1320
AATTGCGTGGCTTTGGTTAGGGTAGCACATGTTTTCTGGATGTGTTGTGTCCTTAAAAAA 1380
TAATGCCGATAGCGGCAGCTGTGATAGTTTTAGATGTTTGTTTTCATAATGTCTGTTATA 1440
TCGTTGTACGAGTAGTATGTGTTGTTTTTGTTGAAACAATCTTCATATCTTAGTGATAAA 1500
TGATAATGCTGTGTAGTCATAGTTTTTAGTTTGCAATAAAAAAAAAAAAAAAA   1553
```

FIGURE 2

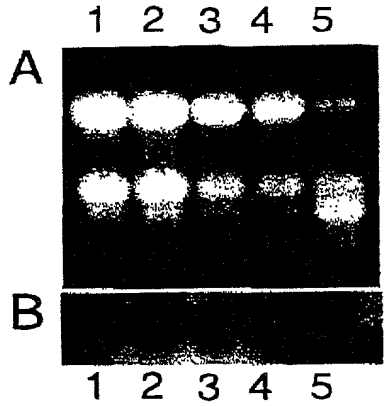


FIGURE 3

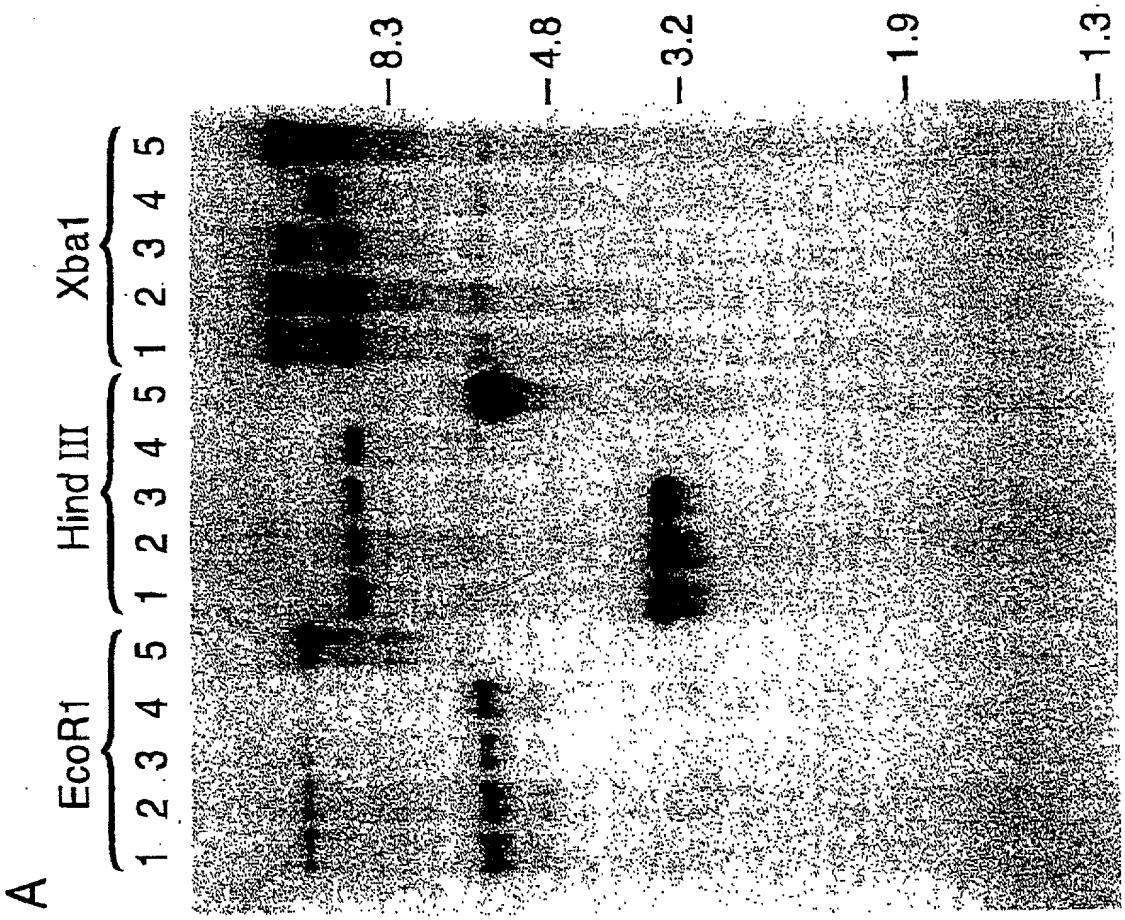


FIGURE 4A

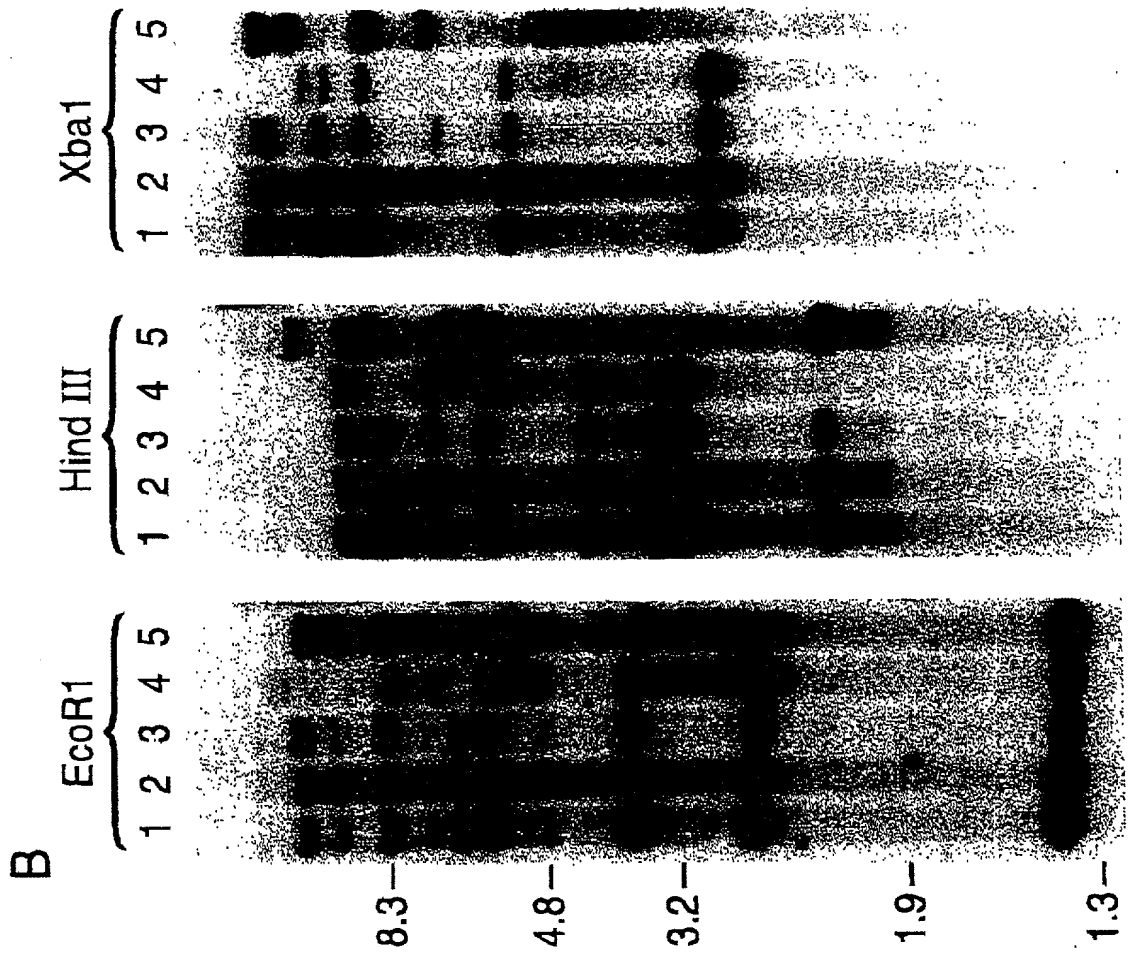


FIGURE 4B

```
CTCGCCCAAAACCAACACGCCTTCTTTGCCTCGTGTTTCATCACCTGGCGTTAAACTGCT      60
TTCTTTAAAGCCAGCAAAATGGGTGCCGGTGGTAGGATGCCAATTGACGGTATAAAGGAG     120
                     M  G  A  G  G  R  M  P  I  D  G  I  K  E
GAAAATCGAGGCTCGGTCAATCGAGTTCCGATCGAGAAGCCTCCGTTTACGCTCGGTCAG     180
E  N  R  G  S  V  N  R  V  P  I  E  K  P  P  F  T  L  G  Q
ATCAAGCAAGCCATTCCGCCCCACTGTTTTCGCCGCTCCCTCCTTCGATCCTTCTCCTAC     240
I  K  Q  A  I  P  P  H  C  F  R  R  S  L  L  R  S  F  S  Y
GTGGTCCATGACCTATGCTTAGCCTCTTTCTTTTACTACATTGCAACATCATATTTTCAC     300
      d12A4 primer
V  V  H  D  L  C  L  A  S  F  F  Y  Y  I  A  T  S  Y  F  H
TTTCTCCCACAACCCTTTTCCTACATTGCTTGGCCTGTCTATTGGGTTCTCCAAGGTTGC     360
F  L  P  Q  P  F  S  Y  I  A  W  P  V  Y  W  V  L  Q  G  C
ATCCTCACCGGTGTTTGGGTCATCGCACACGAGTGGGGTCACCACGCTTTCAGAGACTAC     420
I  L  T  G  V  W  V  I  A  H  E  W  G  H  H  A  F  R  D  Y
CAATGGGTTGACGACACCGTCGGGTTGATCCTTCATTCCGCCCTTTTAGTCCCGTACTTC     480
Q  W  V  D  D  T  V  G  L  I  L  H  S  A  L  L  V  P  Y  F
TCGTGGAAAATCAGTCACCGCCGTCACCACTCGAACACCGGTTCCATGGAGCGTGACGAA     540
S  W  K  I  S  H  R  R  H  H  S  N  T  G  S  M  E  R  D  E
GTATTCGTGCCCAAACCCAAGTCTAAATTATCATGCTTTGCGAAATACTTAAACAATCCA     600
V  F  V  P  K  P  K  S  K  L  S  C  F  A  K  Y  L  N  N  P
CCCGGTCGAGTTCTATCTCTTGTAGTCACATTGACTCTTGGTTGGCCTATGTACTTAGCC     660
P  G  R  V  L  S  L  V  V  T  L  T  L  G  W  P  M  Y  L  A
TTCAACGTTTCGGGTCGATACTATGATCGATTAGCTTCCCACTATAACCCTTATGGCCCC     720
F  N  V  S  G  R  Y  Y  D  R  L  A  S  H  Y  N  P  Y  G  P
ATTTACTCCGATCGCGAGAGGCTACAAGTTTACATCTCCGATACTGGTATATTTGCGGTA     780
I  Y  S  D  R  E  R  L  Q  V  Y  I  S  D  T  G  I  F  A  V
ATTTATGTACTTTATAAGATTGCTGCAACAAAAGGGCTGGCTTGGCTTTTATGCACTTAT     840
I  Y  V  L  Y  K  I  A  A  T  K  G  L  A  W  L  L  C  T  Y
GGGGTGCCTCTACTTATTGTGAATGCCTTCCTTGTGTTGATCACCTACTTGCAACATACT     900
G  V  P  L  L  I  V  N  A  F  L  V  L  I  T  Y  L  Q  H  T
CACTCGGCATTGCCGCATTATGACTCGTCCGAATGGGATTGGTTGCGAGGAGCATTGTCG     960
H  S  A  L  P  H  Y  D  S  S  E  W  D  W  L  R  G  A  L  S
ACGATGGATCGAGATTTCGGGGTGTTGAACAAAGTGTTCCATAACATCACCGATACGCAT    1020
T  M  D  R  D  F  G  V  L  N  K  V  F  H  N  I  T  D  T  H
GTTGCTCATCACCTCTTCTCAACGATGCCACATTATCATGCAATGGAGGCCACTAAAGCA    1080
V  A  H  H  L  F  S  T  M  P  H  Y  H  A  M  E  A  T  K  A
ATCAAACCAATACTCGGCAAGTATTATCCTTTCGACGGGACACCGATTTACAAGGCAATG    1140
I  K  P  I  L  G  K  Y  Y  P  F  D  G  T  P  I  Y  K  A  M
TGGAGGGAGGCAAAAGAGTGCCTTTACGTTGAGCCTGACGTTGGTGGTGGTGGTGGTGGT    1200
W  R  E  A  K  E  C  L  Y  V  E  P  D  V  G  G  G  G  G  G
AGCAAAGGTGTTTTTTGGTATCGTAACAAGTTCTAAAGACCGACCAACTGCCTGATAGCT    1260
S  K  G  V  F  W  Y  R  N  K  F  *
GGCCGGCGAAATCAACGTAAAACGTACTTATTAGACTAGTGTTAACTAGGGAAGTTAATA    1320
ATTAATGGTAGGAAAATGTGGAATAGTTGCCTAGTAGTTTTATGTATTAAGTGTTGTATT    1380
AATAAACTATATGGTAGAAAAAAAAAAAAAA                                  1411
```


FIGURE 5

```
taaaaaaaaaaggcatttctttcatcttaaagagacagcgaggaagccacgaagataata
gagtgattttcaatctccattttaagggtgtggaacaatgggtgctggaggcagaatgtc
                                        M  G  A  G  G  R  M  S
ggttccaacgagtccaaaaaaacccgaattcaactcactgaagcgagttccatactcaaa
 V  P  T  S  P  K  K  P  E  F  N  S  L  K  R  V  P  Y  S  K
gccacccttcactctgagtgaaatcaagaaagccatcccaccacactgtttccagcgctc
 P  P  F  T  L  S  E  I  K  K  A  I  P  P  H  C  F  Q  R  S
cgttttacgctcattctcatatctcctttacgactttatattggcctctctttttttacca
 V  L  R  S  F  S  Y  L  L  Y  D  F  I  L  A  S  L  F  Y  H
tgtggccaccaattacttccctaaccttcctcaggctctctccaacgtggcttggcctct
 V  A  T  N  Y  F  P  N  L  P  Q  A  L  S  N  V  A  W  P  L
ttattgggccatgcaaggttgcattttgaccggcgtttgggtcatagcccatgaatgtgg
 Y  W  A  M  Q  G  C  I  L  T  G  V  W  V  I  A  H  E  C  G
ccaccatgctttcagtgattatcaatggcttgacgacaccgtgggccttatcctccactc
 H  H  A  F  S  D  Y  Q  W  L  D  D  T  V  G  L  I  L  H  S
ttctctcttagttccatatttctcttggaaatatagccaccggcgtcaccattctaacac
 S  L  L  V  P  Y  F  S  W  K  Y  S  H  R  R  H  H  S  N  T
cggttccctcgaaagggatgaagtgttcgttcccaagaaaaaatctggtttaagatggtg
 G  S  L  E  R  D  E  V  F  V  P  K  K  K  S  G  L  R  W  W
ggccaaacacttcaacaatccaccgggtcggtttctgtcaatcaccattcaacttaccct
 A  K  H  F  N  N  P  P  G  R  F  L  S  I  T  I  Q  L  T  L
tggttggccgctttacttagctttcaacgttgccggccggccttacgacaggttcgcttg
 G  W  P  L  Y  L  A  F  N  V  A  G  R  P  Y  D  R  F  A  C
ccactatgacccttacggccccatattttccgaccgggaacgactccaaatctatatctc
 H  Y  D  P  Y  G  P  I  F  S  D  R  E  R  L  Q  I  Y  I  S
tgacgccggcgtcctcgctgtcgcctatgcgctctaccgtctcgtgttggccaaaggggt
 D  A  G  V  L  A  V  A  Y  A  L  Y  R  L  V  L  A  K  G  V
aggttgggttattagcgtttatggggtgccattattggtggttaacgccttcttagtaat
 G  W  V  I  S  V  Y  G  V  P  L  L  V  V  N  A  F  L  V  M
gatcacgtatttgcaacacactcacccatctttgccgcactatgattcctcggagtggga
 I  T  Y  L  Q  H  T  H  P  S  L  P  H  Y  D  S  S  E  W  D
ctggatgagaggagctttatcaactgtggacagagattatgggatttaaacaaggtttt
 W  M  R  G  A  L  S  T  V  D  R  D  Y  G  I  L  N  K  V  F
ccataacataaccgacactcatgtggctcatcatttgttttcgacaatgcctcactatca
 H  N  I  T  D  T  H  V  A  H  H  L  F  S  T  M  P  H  Y  H
tgccatggtggccaccaaggcgataaagcccatattgggggaatactatcagttcgatgg
 A  M  V  A  T  K  A  I  K  P  I  L  G  E  Y  Y  Q  F  D  G
gatgcctgtctataaggcgatatggagggaggcgaaggagtgtctctacgttgaaccaga
 M  P  V  Y  K  A  I  W  R  E  A  K  E  C  L  Y  V  E  P  D
tgagggcgacaaggataaaggtgtgttttggtttagaaacaagctttaaatatttgcatt
 E  G  D  K  D  K  G  V  F  W  F  R  N  K  L  *
ttaccttaggcatgttctagtcgttgatgttttaaggatattttagccgacatacttggt
tttccttttgggacttttagctttgtatttgcagacaataatcttgttcactattaaa
taatggtagaaataaatacacagcatggattggcaataaaaa
```

FIGURE 6

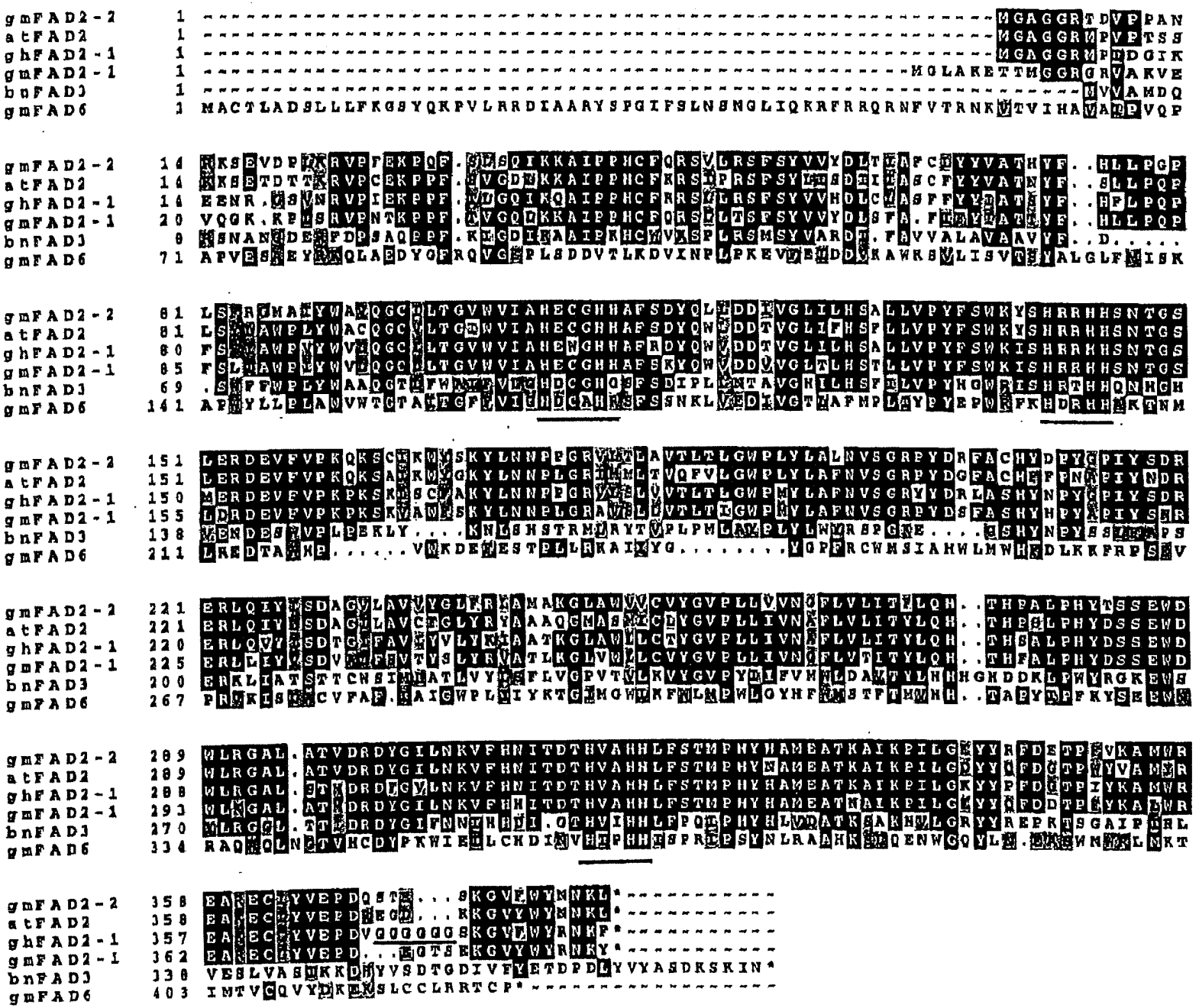


FIGURE 7

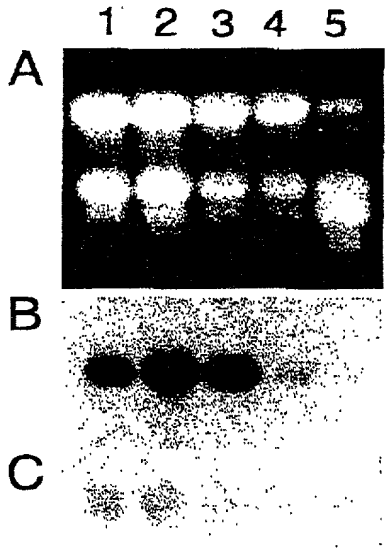


FIGURE 8

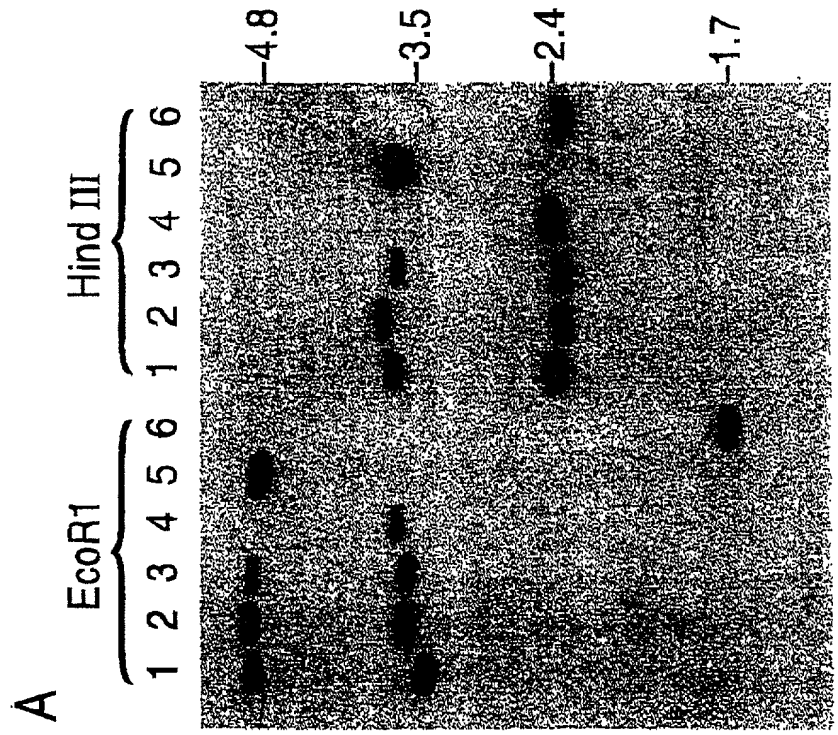


FIGURE 9A

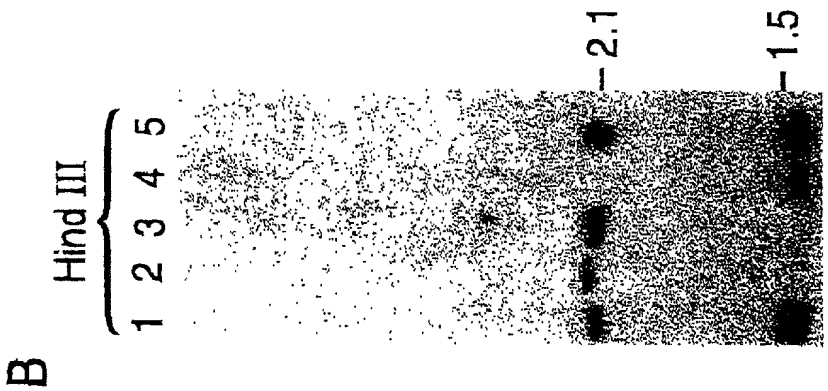


FIGURE 9B

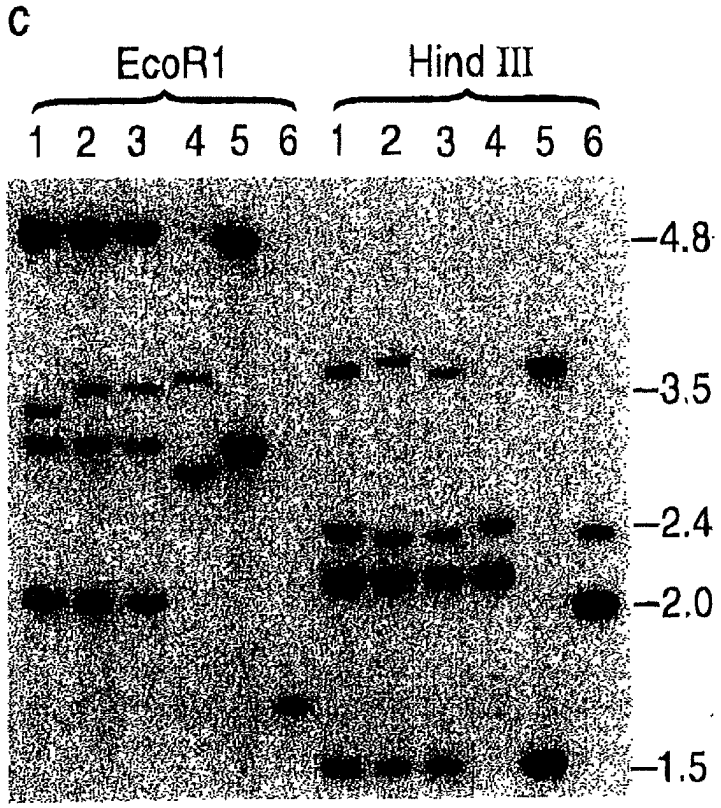
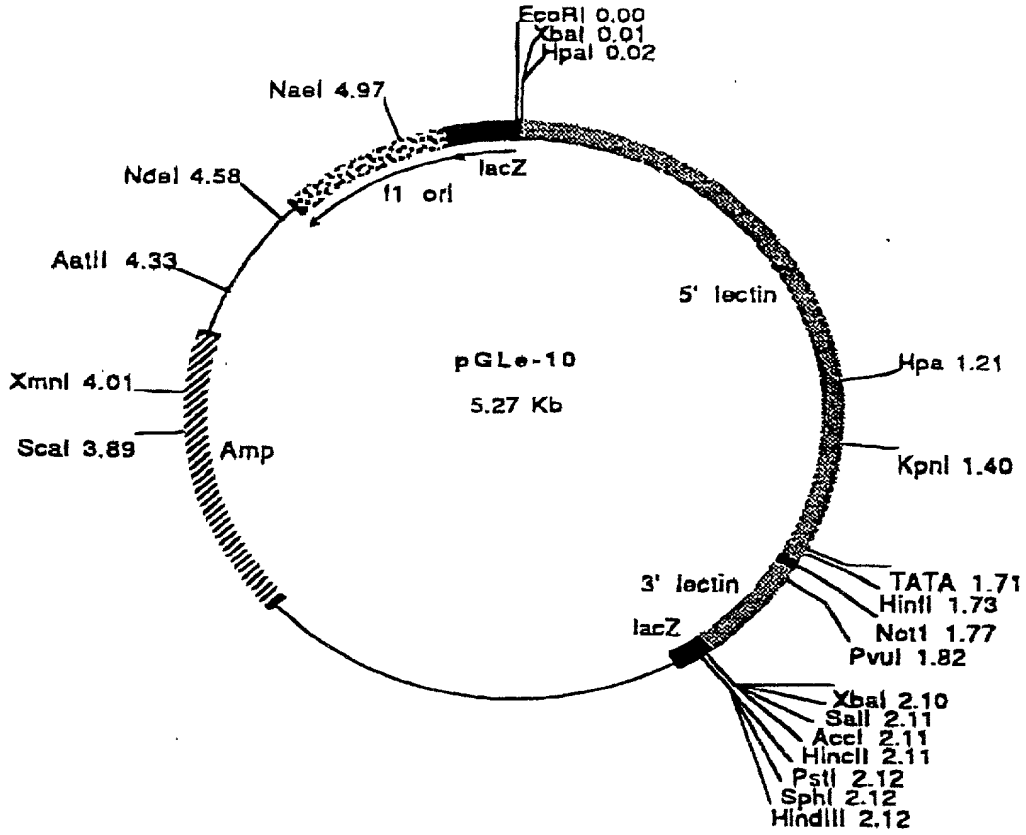


FIGURE 9C


EcoRI 0.00
XbaI 0.01
HpaI 0.02
NaeI 4.97
NdeI 4.58
AatII 4.33
XmnI 4.01
ScaI 3.89
lacZ
f1 ori
5' lectin
pGLe-10
5.27 Kb
Amp
Hpa 1.21
KpnI 1.40
3' lectin
lacZ
TATA 1.71
HinfI 1.73
NotI 1.77
PvuI 1.82
XbaI 2.10
SalI 2.11
AccI 2.11
HincII 2.11
PstI 2.12
SphI 2.12
HindIII 2.12

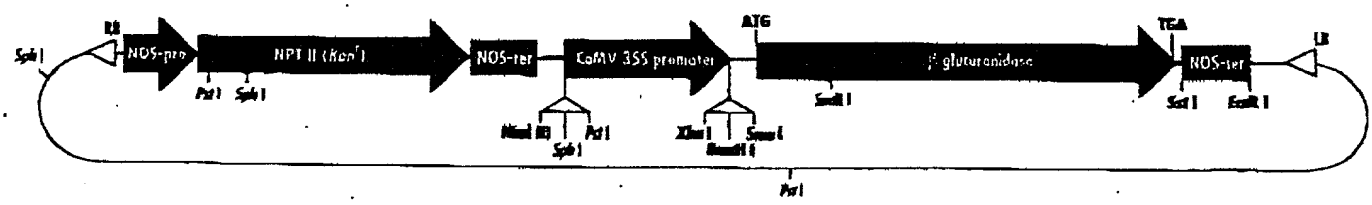
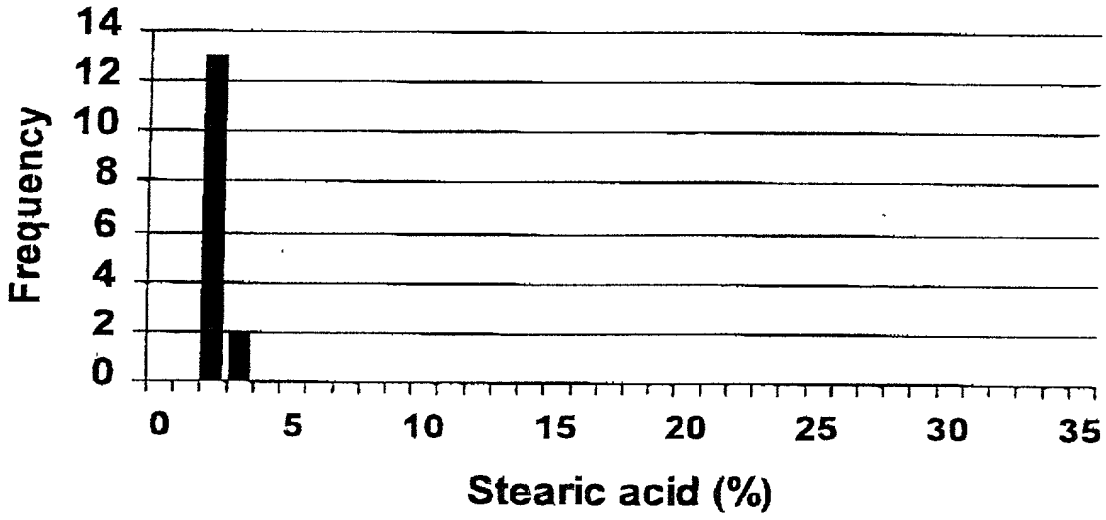

NOS-ter
NOS-ter
ATG
TGA
PstI
SphI
SmaI
SstI
EcoRI

FIGURE 10


Frequency
14
12
10
8
6
4
2
0
0
5
10
15
20
25
30
35
Stearic acid (%)

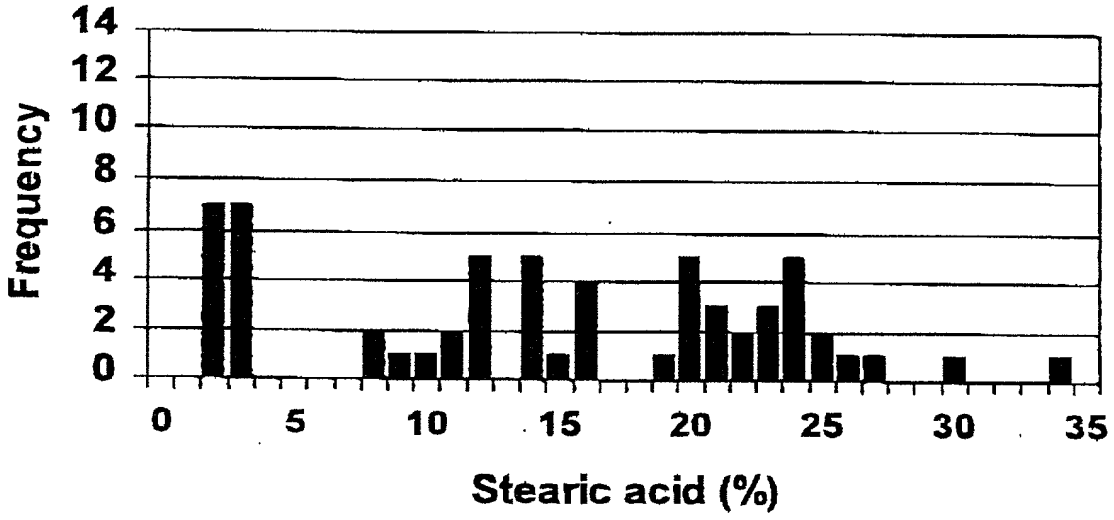
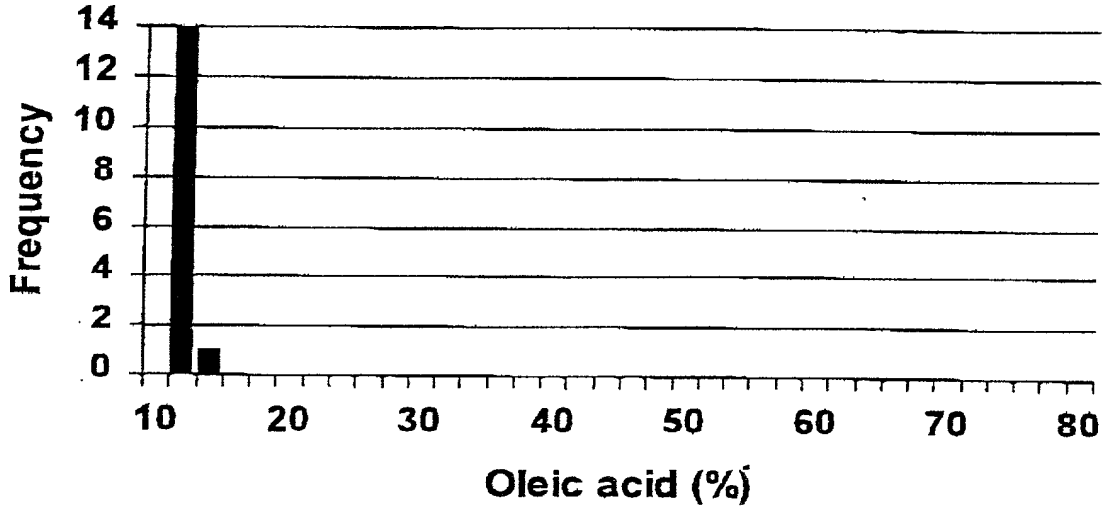

Frequency
14
12
10
8
6
4
2
0
0
5
10
15
20
25
30
35
Stearic acid (%)

FIGURE 11


Frequency
14
12
10
8
6
4
2
0
10
20
30
40
50
60
70
80
Oleic acid (%)

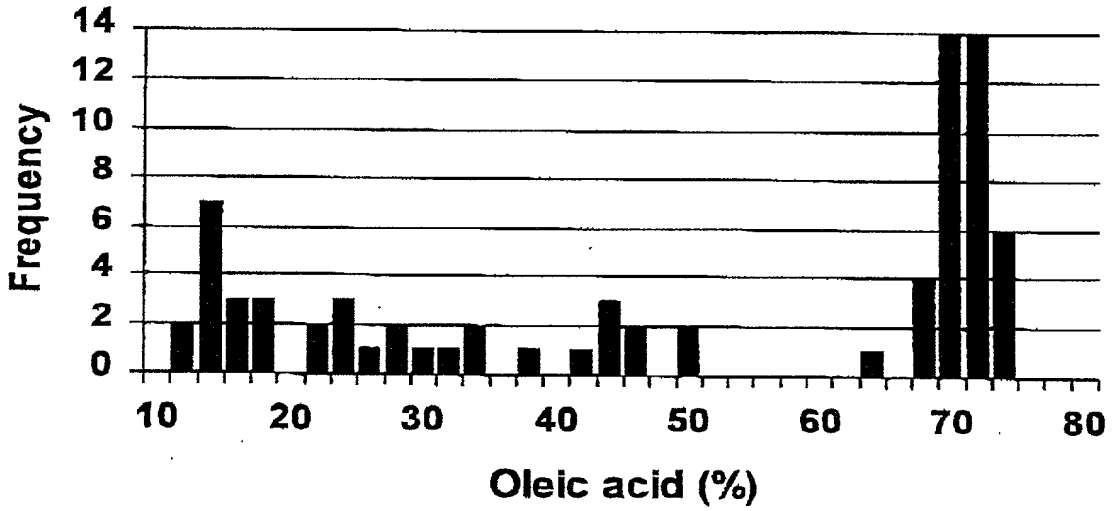

Frequency
14
12
10
8
6
4
2
0
10
20
30
40
50
60
70
80
Oleic acid (%)

FIGURE 12

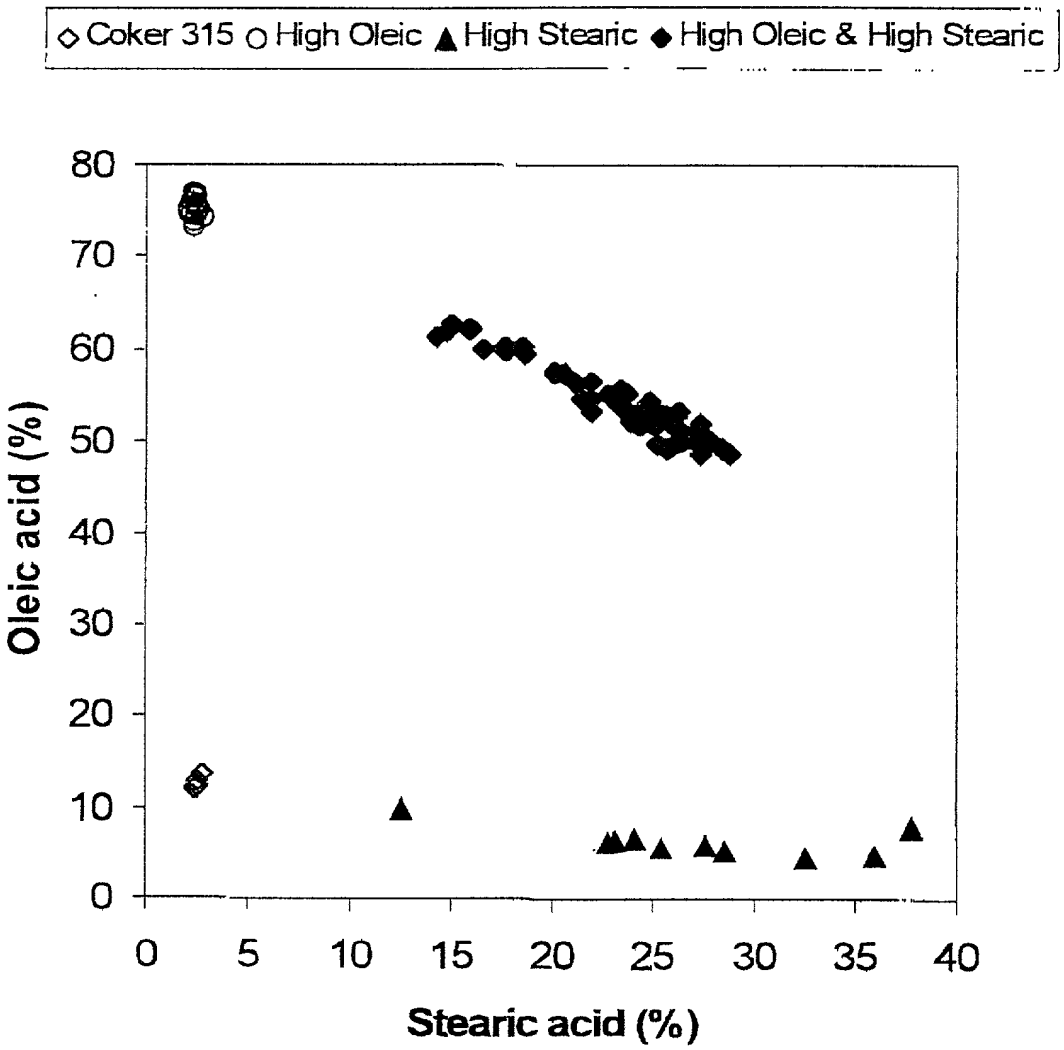

◇ Coker 315 ○ High Oleic ▲ High Stearic ◆ High Oleic & High Stearic
Oleic acid (%)
Stearic acid (%)
0
10
20
30
40
50
60
70
80
0
5
10
15
20
25
30
35
40

FIGURE 13